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(19) **United States**(12) **Patent Application Publication****KARANIKOS et al.**(10) **Pub. No.: US 2016/0256931 A1**(43) **Pub. Date: Sep. 8, 2016**(54) **POLISHING AND BRUSHING TECHNIQUES
FOR CYLINDRICAL AND CONTOURED
SURFACES**(52) **U.S. Cl.**CPC **B23B 3/30** (2013.01); **G05B 19/404**
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ABSTRACT

Material removal processes of a structure are disclosed. These processes can define several features. For example, metal structure can include an interior recess surrounded by a sidewall. The structure can further include a base portion integrally formed with the sidewall. The sidewall can include an opening extending through the sidewall and into the interior recess. The sidewall can undergo a material removal process to include multiple curved regions. The sidewall, the first curved region, and the second curved region can be polished to include a reflectivity different than a reflectivity of an exterior region of the base portion. A single multi-axes lathe having multiple spindles performs several material removal processes under a continuous machine cutting process. The spindles may include clamping features that allow a first spindle to perform a first operation then pass the metal structure to a second spindle. Additional processes include lapping, polishing, and linear brushing.

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